SGI Filesystem I/O Benchmarking Plan

1.   Goals And Objectives

The goals of this effort are to evaluate an alternative for the second Release B procurement for the SDPS storage subsystem.

1.1 Filesystem Performance

Filesystem performance -- disk I/O -- is an area of major concern for the Release B design because of the very high rates of disk access required by the Release B instruments, particularly MODIS. Our objective in performing these benchmarks is to implement filesystems as similar as possible to those that will be fielded for Release B, and to measure sustained throughput against these filesystems, using both I/O benchmarking software and science software. The filesystems under test will (if possible) be built using Irix 6.2 with XFS, striped over fiber channel based RAID arrays, using the latest drives and controllers available from Ciprico and Prisa. Ciprico anticipates that we will be able to sustain 80 MB/second throughput from each Fiber channel; the objective of the effort is to validate this assumption.

2   Equipment

2.1   Hardware

No additional hardware except for the Ciprico Fiberchannel Arrays, Prisa Controller Cards, and associated cabling will be required.

2.2   Software

There will be two main software packages utilized for this test purpose. These are described below

xdd. A standard Unix utility that allows transfer of variable sized data to and from file systems or raw devices at varying block sizes.

Performance CoPilot. This will be included in the request to SGI. This provides insight into a number of operating system level performance statistics.

3   Test Plans

10/3/96

Extend previous testing of the Ciprico Fiber Channel product by reproducing tests performed on SGI's Clarion Disk Array attached to Phoenix controllers. This includes multithreaded I/O tests.